

CLAIMS

Amend the claims as follows.

1. (Currently Amended) ~~An image compensating~~ A method, comprising:
scanning a document ~~, a longitudinal white pattern, and a longitudinal black pattern,~~
~~thereby producing to determine~~ a plurality of actual gray level values for a plurality of pixels ~~of~~
scanned from the document;
scanning a continuous longitudinal black pattern while scanning the document to
determine ~~determining~~ a plurality of correctional gray level value[[s]] for complete black;
scanning a continuous longitudinal white pattern while scanning the document to
determine ~~and a plurality of~~ correctional gray level value[[s]] for complete white ~~based at least in~~
~~part on the longitudinal black and white patterns;~~
determining a compensational gray level value with respect to the actual gray level value
for each of the pixels based at least in part on ~~a respective one of~~ the correctional gray level
value[[s]] for complete black, ~~a respective one of~~ the correctional gray level value[[s]] for
complete white, ~~a theoretical gray level value for complete black, a theoretical gray level value~~
~~for complete white,~~ and the actual gray level values for each of the pixels scanned from the
document; and
compensating for image brightness in a scanned image of the document using the
compensational gray level value for each of the pixels.
2. (Currently Amended) ~~The image compensating method as recited in~~ according to claim
1, wherein the method is used in a scanner and the scanner comprises:
a top;
a scanning chassis configured to be movable under the top along a scanning path; and
a scanning platform disposed at the top, wherein the scanning platform is configured to
support the document above the scanning chassis,
wherein ~~the longitudinal black and white patterns are disposed on an inner wall of the top~~
~~adjacent to the scanning platform, such that the scanning chassis can scan the document and the~~

~~longitudinal black and white patterns substantially simultaneously~~ longitudinal black pattern is positioned along a lateral side of the scanning platform and extends continuously along substantially an entire length of the scanning path and wherein the longitudinal white pattern is positioned laterally adjacent to the longitudinal black pattern and extends continuously along substantially the entire length of the scanning path.

3. (Currently Amended) ~~The image-compensating method as recited in~~ according to claim 1, wherein determining the compensational gray level value for each of the pixels comprises:

calculating [(each of the actual gray level values with respect to each of the pixels - the ~~respective~~ correctional gray level value for complete black) $[[/]] \div$ (the ~~respective~~ correctional gray level value for complete white - the ~~respective~~ correctional gray level value for complete black) $[[x]]$ * (the a theoretical gray level value for complete white - the a theoretical gray level value for complete black)].

4. (Currently Amended) ~~An image-compensating~~ A method, comprising:

scanning a document and a continuous longitudinal ~~complete~~ white pattern, ~~thereby at the same time;~~

~~producing~~ determining a plurality of actual gray level values for a plurality of pixels of scanned from the document;

determining a ~~plurality of~~ correctional gray level value $[[s]]$ for ~~complete~~ white based at least in part on the longitudinal white pattern;

determining a compensational gray level value with respect to the actual gray level values for each of the pixels based at least in part on ~~a respective one of~~ the correctional gray level value $[[s]]$ for ~~complete~~ white, a theoretical gray level value for ~~complete~~ white, and the actual gray level values for each of the pixels; and

compensating a scanned image of the document using the compensational gray level value for each of the pixels.

5. (Currently Amended) ~~The image-compensating method as recited in~~ according to claim 4, wherein the method is used in a scanner and the scanner comprises:

a top;

a scanning chassis configured to be movable under the top along a scanning path; and
a scanning platform disposed ~~in~~ at the top, wherein the scanning platform is configured to support the document above the scanning chassis,

wherein the longitudinal ~~complete~~ white pattern is ~~disposed on an inner wall of the top adjacent to the scanning platform, such that the scanning chassis can scan the document and the longitudinal complete white pattern substantially simultaneously~~ positioned on the top along a lateral side of the scanning platform and extends continuously along substantially an entire length of the scanning path.

6. (Currently Amended) The ~~image compensating~~ method ~~as recited in~~ according to claim 5, wherein determining the compensational gray level value[[s]] for each of the pixels comprises:
calculating [each of the actual gray level values with respect to each of the pixels \times * (the theoretical gray level value for ~~complete~~ white [[/]] \pm the ~~respective~~ correctional gray level value for ~~complete~~ white)].

7. (Currently Amended) ~~An image compensating~~ A method, comprising:
scanning a document and a continuous longitudinal ~~complete~~ black pattern, ~~thereby producing at the same time;~~
determining a plurality of actual gray level values for a plurality of pixels ~~of from~~ from the document;
determining a ~~plurality of~~ correctional gray level value[[s]] for ~~complete~~ black based at least in part on the longitudinal black pattern;
determining a compensational gray level value with respect to the actual gray level values for each of the pixels based at least in part on ~~a respective one of~~ the correctional gray level value[[s]] for ~~complete~~ black, a theoretical gray level value for ~~complete~~ black, and the actual gray level values for each of the pixels; and
compensating a scanned image of the document using the compensational gray level value for each of the pixels.

8. (Currently Amended) The ~~image compensating~~ method ~~as recited in~~ according to claim 7, wherein the method is used in a scanner, and the scanner comprises:

a top;

a scanning chassis configured to be movable under the top along a document scanning path; and

a scanning platform disposed in the top, wherein the scanning platform is configured to support the document above the scanning chassis,

wherein the longitudinal ~~complete~~ black pattern is ~~disposed on an inner wall of the top adjacent to the scanning platform, such that the scanning chassis can scan the document and the longitudinal complete black pattern substantially simultaneously~~ positioned on the top along a lateral side of the scanning platform and extends continuously along substantially an entire length of the document scanning path.

9. (Currently Amended) The ~~image compensating method as recited in~~ according to claim 7, wherein determining the compensational gray level value for each of the pixels comprises:

calculating [each of the actual gray level values with respect to each of the pixels - (the ~~respective~~ correctional gray level value for ~~complete~~ black - the theoretical gray level value for ~~complete~~ black)].

10. (Currently Amended) An apparatus comprising:

a top portion having a surface;

a scanning ~~chassis~~ element configured to be moveable under the top portion in a document scanning direction;

a scanning platform disposed at the top portion, the scanning platform configured to support a document above the scanning ~~chassis~~ element;

a reference pattern disposed on the surface of the top portion adjacent to the scanning platform and elongated in the document scanning direction; and

a processor configured to:

determine actual gray level values for ~~each~~ pixels of a scanned image of the document;

determine a compensational gray level value[[s]] for ~~each~~ the pixels of the scanned image based at least in part on the reference pattern; and

compensate the scanned image using the compensational gray level value[[s]].

11. (Previously Presented) The apparatus of claim 10, wherein the processor is further configured to determine a correctional gray level value based at least in part on the reference pattern.

12. (Currently Amended) The apparatus of claim 11, wherein the reference pattern comprises a continuous black pattern elongated in a direction parallel with the document scanning direction and a continuous white pattern elongated in a direction parallel with the document scanning direction and positioned adjacent to the continuous black pattern, and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern and determine a white correctional gray level value from the continuous white pattern.

13. (Currently Amended) The apparatus of claim 12, wherein the processor is further configured to determine the compensational gray level value ~~of a particular one of the pixels~~ based at least in part on the black correctional gray level value, the white correctional gray level value, a theoretical gray level value for ~~complete~~ black, a theoretical gray level value for ~~complete~~ white, and the actual gray level values ~~of the particular pixel~~.

14. (Currently Amended) The apparatus of claim 11, wherein the reference pattern comprises a continuous black pattern, and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern.

15. (Currently Amended) The apparatus of claim ~~[[14]]~~ 10, wherein the ~~processor is~~ further ~~configured to determine the compensational gray level value of a particular one of the pixels based at least in part on the black correctional gray level value, a theoretical gray level value for complete black, and the actual gray level value of the particular pixel~~ scanning element is configured to scan both the reference pattern and the document at the same time.

16. (Currently Amended) The apparatus of claim 11, wherein the reference pattern comprises a continuous white pattern, and wherein the processor is further configured to determine a white correctional gray level value from the continuous white pattern.

17. (Currently Amended) The apparatus of claim 16, wherein the processor is further configured to determine the compensational gray level value of ~~a particular one of the pixels~~ based at least in part on the white correctional gray level value, a theoretical gray level value for ~~complete~~ white, and the actual gray level values ~~of the particular pixel~~.

18. (Currently Amended) The apparatus of claim 10, wherein a length of the reference pattern is parallel to the scanning direction and equal to or greater than a length of the scanning platform.

19. (Currently Amended) An apparatus comprising:
~~a top having a surface;~~
means for scanning ~~configured to be moveable under the top~~ a document and a calibration pattern at the same time along a scanning path;
means for obtaining actual grey level values from the scanned document and obtaining a compensational grey level value from the scanned calibration pattern;
~~means for supporting a document above the means for scanning;~~
~~means for referencing disposed at the surface of the top adjacent to the means for supporting; and~~
means for image compensating ~~configured to:~~
 ~~determine actual gray level values for each pixel of a scanned image of the document;~~
 ~~determine compensational gray level values for each pixel of the scanned image based at least in part on the means for referencing; and~~
 compensate the a scanned image using the actual grey level values and the compensational gray level value[[s]].

20. (Currently Amended) The apparatus of claim 19, wherein the means for ~~image compensating~~ is further configured to ~~determine a correctional gray level value based at least in part on the means for referencing~~ scanning is further configured to continuously scan both the calibration pattern and the document while moving longitudinally along the scanning path.

21. (Currently Amended) The apparatus of claim 20, wherein the ~~means for referencing~~ calibration pattern comprises a black pattern and a white pattern that are each elongated in a direction parallel with the scanning path and wherein the means for ~~image~~ compensating is further configured to determine a black correctional gray level value from the black pattern and a white correctional gray level value from the white pattern.

22. (Currently Amended) The apparatus of claim 20, wherein the ~~means for referencing~~ calibration pattern comprises a black pattern, and wherein the means for ~~image~~ compensating is further configured to determine a black correctional gray level value from the black pattern.

23. (Currently Amended) The apparatus of claim 20, wherein the ~~means for referencing~~ calibration pattern comprises a white pattern, and wherein the means for ~~image~~ compensating is further configured to determine a white correctional gray level value from the white pattern.

24. (Currently Amended) The apparatus of claim 19, wherein a length of the ~~means for referencing~~ calibration pattern is equal to or greater than a length of the ~~means for supporting~~ scanning path.

Cancel claims 25-30.